

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A soldering method comprising: comprising soldering a component to a printed circuit board using a selective soldering apparatus at a soldering station, automatically inspecting the board to detect the presence of a faulty joint, and automatically returning the board to the soldering station to re-solder the faulty joint.

moving a first printed circuit board and a first component thereon in a first direction on a conveyor to a return position at a soldering station,

collecting the first printed circuit board from the return position by a carriage at the soldering station and soldering the first component to the printed circuit board using a selective soldering apparatus at the soldering station,

returning the first printed circuit board to the return position,

operating the conveyor to move the first printed circuit board in the first direction to an inspection station and to move a second printed circuit board having a second component thereon to the return position,

collecting the second printed circuit board from the return position by the carriage at the soldering station and soldering the second component to the second printed circuit board using the selective soldering apparatus at the soldering station,

and, while the second printed circuit board is being soldered, automatically inspecting the first printed circuit board to detect the presence of a faulty joint on the first printed circuit board,

returning the second printed circuit board to the return position,

and, when a faulty joint on the first printed circuit board is detected,

automatically operating the conveyor in a reverse direction, opposite to the first direction, to return the first printed circuit board to the return position, and

collecting the board from the return position by the carriage and re-soldering the faulty joint.

2. (Original) A soldering method as claimed in claim 1, wherein the inspection is an optical inspection.
3. (Currently Amended) A soldering method as claimed in claim 2, wherein the inspection identifies a joint which is which joints are, or are is likely to be, faulty.
4. (Original) A soldering method as claimed in claim 3, wherein when the board is returned to the soldering station only joints identified as being faulty, or components having faulty joints, are re-soldered.
5. (Canceled)
6. (Currently Amended) A soldering method as claimed in claim 1, wherein the conveyor is operated to move the second printed circuit board to the inspection station when the inspected first printed circuit board is being re-soldered, whereby the first and second boards pass one another in the production line an inspected board and an upstream board pass one another in the production line, when the inspected board is re-soldered.

Claims 7-10 (Canceled)

11. (Currently Amended) A soldering method as claimed in claim 8, wherein the board to be re-soldered is moved upstream of the return position, the upstream board is deposited at the return position, and then both boards are moved downstream, respectively to the return position and the inspection station claim 1, wherein the second printed circuit board is returned to the return position after the conveyor is operated in the opposite direction, the first printed circuit board being moved upstream of the return position before the second printed circuit board is deposited at the return position, and then the conveyor is operated to move both printed circuit boards in the first direction, respectively to the return position and the inspection station.

12. (Canceled)

13. (Original) A soldering method as claimed in claim 1, wherein a re-soldered board is passed back to the inspection station, and a board is re-turned for re-soldering only a maximum pre-determined number of times.

14. (Original) A soldering method as claimed in claim 1, wherein a board to be re-soldered to be passed back to a fluxing and/or pre-heating station before re-soldering.

15. (Original) A soldering method as claimed in claim 14, wherein the fluxing and/or pre-heating stations are kept clear until the inspection of a board is completed, and a new board is fed to these stations only if the inspection is passed.

16. (Original) A soldering method as claimed in claim 1, wherein a board is soldered at a first dip soldering apparatus, and re-soldered at a second soldering apparatus at the soldering station.

17. (Currently Amended) A soldering apparatus comprising:

a container for molten solder;

a conveyor for conveying a printed circuit board in a first direction through a return position in a soldering station having the molten solder container thereat and through an inspection station having an inspection apparatus thereat, and in a reverse direction opposite the first direction a printed circuit board;

an XYZ carriage for lifting a carriage for moving a said circuit board from the conveyor to the container to dip leads to be soldered into solder in the container to form soldered joints and returning depositing the circuit board back on to the conveyor;

apparatus for automatically inspecting a soldered joint to determine if the joint does not meet predetermined requirements; and

control apparatus for operating the conveyor in the reverse direction to automatically returning return the board to the carriage soldering station if a joint does not meet the predetermined requirements.

18. (Original) Apparatus as claimed in claim 17, wherein the automatic inspecting apparatus is arranged to inspect the board while the board is on the conveyor.

Claims 19-22 (Canceled)

23. (Currently Amended) Apparatus as claimed in claim 17 [[22]], wherein the conveyor comprises two adjacent conveyor sections, which are operable independently to convey a board along the respective section, and the return position is provided on the downstream section.

24. (Canceled)

25. (Currently Amended) Apparatus as claimed in claim 17 [[22]], wherein control apparatus is provided for controlling the carriage to deposit a soldered board on the conveyor and controlling the conveyor to move the deposited board upstream on the conveyor, and moving a board to be re-soldered into the return position for collection by the carriage.

26. (Currently Amended) Apparatus as claimed in claim 17 [[24]], wherein control apparatus is provided to control the conveyor to move a board to be re-soldered upstream of the return position, controlling the carriage to deposit the upstream board at the return position, and then controlling the carriage to move both boards downstream, respectively to the return position and the inspecting means.

27. (Currently Amended) Apparatus as claimed in claim 17 [[22]], wherein control apparatus is provided to control the carriage to return a board to the conveyor upstream of the return position, to control the conveyor to move a board to be re-soldered back to the return position.

28. (Original) Apparatus as claimed in claim 17, wherein control apparatus is provided to limit the number of times a board is returned for re-soldering.
29. (Original) Apparatus as claimed in claim 17, wherein fluxing and/or pre-heating apparatus are provided, and control means is provided to convey a board to be re-soldered back to the fluxing and/or pre-heating means.
30. (Original) Apparatus as claimed in claim 29, wherein control apparatus is provided to keep the fluxing and/or pre-heating apparatus clear until the inspection of a board is completed, and to feed a new board to these stations only if the inspection is passed.